

# VM10 VM10W SERIES

10 Watt DC/DC Converter  
Single and Dual Output  
1500 VDC Isolation

**vitec**  
dc conversion

## FEATURES AND APPLICATIONS

- 2:1 & 4:1 Input Range
- High Efficiency up to 87%
- Low Ripple and Noise
- Continuous Short Circuit Protection
- Optional Remote ON/OFF
- RoHS ✓

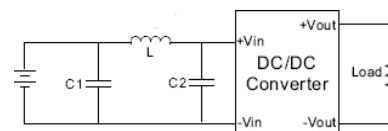
## GENERAL DESCRIPTION

The VM10 and VM10W series is a family of 10W single and dual output DC-DC converters. These converters combine a nickel-coated copper package in a compatible case (50.8 x 25.4 x 10.2 mm) with high performance features such as 1500Vdc input/output isolation voltage, continuous short circuit protection with automatic restart and tight line and load regulation. The wide range VM10 devices operate over 2:1 input voltage range providing stable output voltage. The VM10W devices operate over a 4:1 ultra wide input range.

Models operate with input voltages of 12, 24 and 48Vdc offering output voltage levels of 3.3, 5, 7.2, 9, 12, 15, 18, 24,  $\pm 3.3$ ,  $\pm 5$ ,  $\pm 7.2$ ,  $\pm 9$ ,  $\pm 12$ ,  $\pm 15$ ,  $\pm 18$  and  $\pm 24$ Vdc. Cooling is by free-air convection.

2:1 Input single and dual Output					4:1 Input single and dual Output				
Model Number	Input Voltage [VDC]	Output Voltage [VDC]	Output Current [mA]	Cap. Load [ $\mu$ F]	Model Number	Input Voltage [VDC]	Output Voltage [VDC]	Output Current [mA]	Cap. Load [ $\mu$ F]
VM10-xx3R3S	9-18 18-36 36-72	3,3	2000	2200	VM10W-xx3R3S	9-36 18-72	3,3	2000	3300
VM10-xx05S		5,0	2000	2200	VM10W-xx05S		5,0	2000	3300
VM10-xx7R2S		7,2	1388	1000	VM10W-xx7R2S		7,2	1388	1000
VM10-xx09S		9,0	1111	1000	VM10W-xx09S		9,0	1111	680
VM10-xx12S		12,0	833	680	VM10W-xx12S		12,0	833	680
VM10-xx15S		15,0	666	470	VM10W-xx15S		15,0	666	470
VM10-xx18S		18,0	555	470	VM10W-xx05D		$\pm 5,0$	$\pm 1000$	$\pm 2200$
VM10-xx24S		24,0	416	330	VM10W-xx7R2D		$\pm 7,2$	$\pm 694$	$\pm 470$
VM10-xx3R3D		9-18 18-36 36-72	$\pm 3,3$	$\pm 1000$	$\pm 1000$		VM10W-xx09D	$\pm 9,0$	$\pm 555$
VM10-xx05D	$\pm 5,0$		$\pm 1000$	$\pm 1000$	VM10W-xx12D	$\pm 12,0$	$\pm 416$	$\pm 470$	
VM10-xx7R2D	$\pm 7,2$		$\pm 694$	$\pm 680$	VM10W-xx15D	$\pm 15,0$	$\pm 333$	$\pm 330$	
VM10-xx09D	$\pm 9,0$		$\pm 555$	$\pm 470$					
VM10-xx12D	$\pm 12,0$		$\pm 416$	$\pm 470$					
VM10-xx15D	$\pm 15,0$		$\pm 333$	$\pm 330$					
VM10-xx18D	$\pm 18,0$		$\pm 277$	$\pm 220$					
VM10-xx24D	$\pm 24,0$		$\pm 208$	$\pm 220$					

xx	nominal Input voltage:
VM10 Series	12 (9 – 18VDC)
	24 (18 – 36VDC)
	48 (36 – 75VDC)
VM10W Series	24 (9 – 36VDC)
	48 (18 – 75VDC)



Suggest adding external input filter to meet conducted emissions (EN55022 Class A)

	L	C1	C2
VM10-Series	12 $\mu$ H	330 $\mu$ F	100 $\mu$ F
VM10W-Series	12 $\mu$ H	47 $\mu$ F	33 $\mu$ F

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## SERIES

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1500 VDC Isolation

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### ELECTRICAL SPECIFICATIONS

Specifications typical at +25°C, nominal Input voltage, rated output current unless otherwise specified.

#### Input Specifications

2:1 Input Voltage Range	12V nominal	9 to 18V
	24V nominal	18 to 36V
<i>VM10 Series</i>	48V nominal	36 to 72V
4:1 Input Voltage Range	24V nominal	9 to 36V
<i>VM10W Series</i>	48V nominal	18 to 72V
Input Filter	Capacitors	
Input Reflected Ripple Currents	35mA pk-pk (measured with a simulated source inductance of 12uH)	

#### Output Specifications

Output Voltage Accuracy	±1%, max.
Ripple and Noise (20 MHz BW)	VT10: 100 mVp-p VT10W: 75 mVp-p
Line Voltage Regulation	±0,5%
Load Voltage Regulation (10% to 100% Loading)	±0,5%
Temperature Coefficient	±0.02%/°C
Short Circuit Protection	Continuous (Automatic Recovery)

#### General Specifications

Efficiency	78% to 87%
Switching Frequency	200 kHz, typ.
Isolation Voltage	1500 VDC
Isolation Resistance	10 <sup>9</sup> Ohms, min.

#### PIN CONNECTIONS

Pin	Standard		P-Option	
	Single Output	Dual Output	Single Output	Dual Output
1	+V Input	+V Input	+V Input	+V Input
2	- V Input	-V Input	-V Input	-V Input
3	+V Output	+V Output	+V Output	+V Output
4	Omitted	Common	Omitted	Common
5	-V Output	-V Output	-V Output	-V Output
6	Omitted	Omitted	Remote On/Off	Remote On/Off

#### Remote ON/OFF Control - Option Suffix "P"

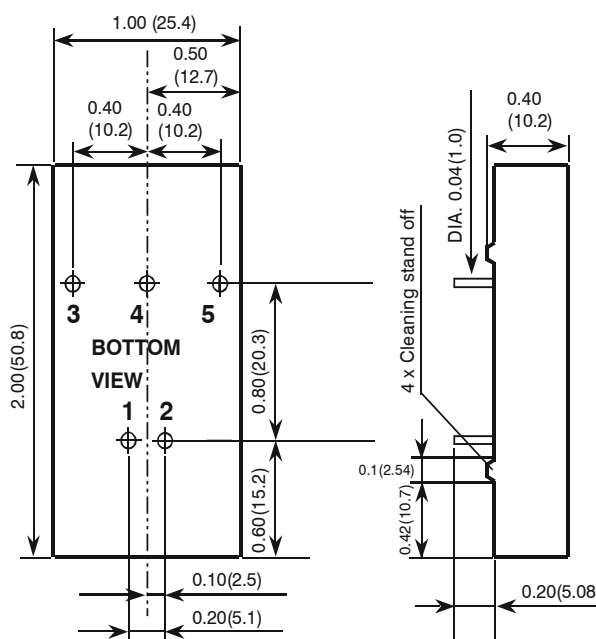
(only for VT10W-Series)  
Control voltage referenced to negative (-) input  
ON 2,5 to 5,5 Vdc or open circuit  
OFF -0,7 to 0,8 Vdc or Short circuit Pin2 and Pin6  
(OFF idle current 2,5mA typ.)

#### Environmental Specification (Reference)

Operating Temperature	-40°C to +85°C
Max. Case Temperature	+100°C
Storage Temperature	-40°C to +105°C
Cooling	Free-air Convection
EMI/RFI	EN55022 Class A with External Input Filter

#### Physical Characteristics

Dimensions	50.8 x 25.4 x 10.2 mm 2.0 x 1.0 x 0.4 inches
Case Material	Nickel-Coated Copper with Non-conductive Base
Weight	30g



Specifications can be changed without prior notice

Products are not intended for and must not be used in life support systems, human implantation, nuclear facilities or systems or any other application where product failure or malfunction of the component could lead to loss of life or catastrophic property damage

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**V i t e c POWER GmbH**

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